

What is claimed is:

1. A cutting tool comprising:
an end cutting edge at an end of a rake face; and
a depression formed in the rake face so as to provide the
5 cutting edge with a concave edge portion.
2. A cutting tool according to claim 1, wherein the depression
has a curved peripheral surface.
- 10 3. A cutting tool according to claim 2, wherein the curved
peripheral surface is a portion of a sphere.
4. A cutting tool according to claim 2, wherein the curved
peripheral surface is a portion of a spheroid.
- 15 5. A cutting tool according to claim 1, wherein the concave
edge portion is located nearly at a center of the end cutting edge.
6. A cutting tool according to claim 1, wherein a maximum depth
20 D_a of the concave edge portion is within the range from 0.05 to
0.25 mm.
7. A cutting tool according to claim 6, wherein the maximum
depth D_a of the concave edge portion is within the range from 0.05
25 to 0.2 mm.
8. A cutting tool according to claim 1, wherein $W/2 \leq W_a \leq$
 $2W/3$ where W is the width of the end cutting edge and W_a is the
width of the concave edge portion of the end cutting edge.

30

9. A cutting tool according to claim 1, wherein $D_a < D_b$ where D_a is the maximum depth of the concave edge portion and D_b is the maximum depth of the depression.

5 10. A cutting tool according to claim 1, wherein $W_a < W_b$ where W_a is the width of the concave edge portion of the end cutting edge and W_b is the maximum width of the depression.

10 11. An indexable insert comprising:
an end cutting edge at an end of a rake face;
the end cutting edge having a concave edge portion; and
a spherical depression formed in the rake face so as to
extend continuously from the concave edge portion of the end
cutting edge.

15 12. An indexable insert comprising:
an end cutting edge at an end of a rake face; and
a spherical depression formed in the rake face so as to form
a concave edge portion in the end cutting edge.

20 13. An indexable insert according to claim 12, wherein the
spherical depression has a curved peripheral surface that is a
portion of a sphere.

25 14. A cutting tool according to claim 12, wherein the spherical
depression has a curved peripheral surface that is a portion of
a spheroid.

30 15. A cutting tool according to claim 12, wherein the concave
edge portion is located nearly at a center of the end cutting edge.

16. An indexable insert according to claim 12, wherein a maximum depth D_a of the concave edge portion is within the range from 0.05 to 0.25 mm.

5 17. An indexable insert according to claim 12, wherein the maximum depth D_a of the concave edge portion is within the range from 0.05 to 0.2 mm.

10 18. An indexable insert according to claim 12, wherein $W/2 \leq W_a \leq 2W/3$ where W is the width of the end cutting edge and W_a is the width of the concave edge portion of the end cutting edge.

15 19. An indexable insert according to claim 12, wherein $D_a < D_b$ where D_a is the maximum depth of the concave edge portion and D_b is the maximum depth of the depression.

20 20. An indexable insert according to claim 12, wherein $W_a < W_b$ where W_a is the width of the concave edge portion of the end cutting edge and W_b is the maximum width of the depression.

25

30